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Navy Environmental Health Center

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NEPMU-2
Norfolk, VA

Inside this Issue:

OPERATION STABILISE:*
The PMT Gets a Reminder

In late September 1999, CINCPACFLT tasked Navy Environmental and Preventive Medicine Unit Six (NEPMU-6) to deploy a team to assist U.S. Forces participating in Operation Stabilise. The operation intended to restore peace and security in East Timor, which had recently voted for independence from Indonesia. The vote resulted in widespread violence and destruction, mostly from pro-Indonesian militias aligned with the Indonesian Army and police forces. As many as 200,000 people had been displaced. The team, CDR Jeff Yund, MC, USN and myself (Chief Duran) arrived three days later in Darwin, Australia prepared to provide Force Health Protection to U.S. Forces, International Forces East Timor (USF, INTERFET). Thanks to a team effort at NEPMU-6, we had arrived with the equipment and supplies needed to accomplish our mission.

This message, "Stop the Killing in East Timor" was seen on a destroyed building in Dili, East Timor as INTERFET arrived

While staging in Darwin, Dr. Yund prepared the Force Health Protection Plan and we helped the USF element get ready to deploy to East Timor, with training, immunizations and permethrin treatment of uniforms and bed nets. USF consisted of Marines, Sailors, Airmen and Soldiers from

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From the OIC:
What is an NEPMU?

What is an NEPMU? The simple answer is that an NEPMU is a Navy Environmental and Preventive Medicine Unit. There are four NEPMUs located around the world in Norfolk, VA; San Diego, CA; Pearl Harbor, HI; and Sigonella, Italy. Each Unit's mission is to provide specialized consultation, technical services, and training in deployed and non-deployed settings regarding matters of preventive medicine, occupational health, environmental health, and health promotion to the Navy and Marine Corps in its assigned area of responsibility.

But, does this truly define what an NEPMU is and does the line and medical personnel working with the line truly know what NEPMUs are all about? As a medical person working with the line who did not know what an NEPMU was all about, let me relate some of my observations after being an OIC for the past year. For those who have spent their careers in the Preventive Medicine community, these observations

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From the S.E.L.

NEPMU 2 continues to move forward into the new millennium by reevaluating its processes of strategic planning and management. I was involved with the development of our new Strategic Plan, Mission and Vision Statements, and Guiding Principles, with a focus on goals and objectives to meet our mission over the next two years. This was a new way of doing business for me. I was used to doing business the "old fashioned way," by getting the job done, no matter what, and just moving on to the next project, as it came up. I could never understand why we just could not go and order what we needed, when we needed it, in order to get the job at hand done. I never took the time to determine if the job that I was accomplishing really fit into the goals of the organization.

After completing our Strategic Planning session, I started to see a clearer picture. I started to see that this was a great opportunity for our sailors to have a much more effective way to communicate their ideas and have a lasting impact on the operation of the organization. By recognizing our sailors as "stakeholders" within the organization, we created a format in which ideas start at the "deckplate" level and work their way up through the organization, contributing to a business plan that allows for more efficient utilization of funds to make things happen.

Now all of this sounds a little strange, but so far I am impressed with how this process is working for NEPMU 2. Of course, nothing comes without a few challenges. You will always be faced with obstacles when developing new practices. The biggest obstacle is getting people who are fixed in their ways to change. At NEPMU 2, we have, and continue to get highly motivated people into the command, which makes the process of change less of a challenge. In addition, seeing young sailors energized when they report to your command tends to give the leaders within the command a spark of energy. All of that energy comes out in the service that you express to your "customers" (The Fleet). And before you know it, you have a profound impact outside of your organization. The end result is a cohesive environment for your staff to work in and customers that know that there is someone looking out for them.

I share these thoughts with all of you as a challenge to not be afraid to have a paradigm shift in your leadership style, especially if you are from the "old school."

SEL, NEPMU-2

For the latest information on Anthrax check out this website:

http://www.anthrax.osd.mil

This site has information on the anthrax threat, the anthrax vaccine, the history of anthrax, facts and myths about anthrax, and a page where you can post any questions you may have.

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***From the OIC:* What is an NEPMU?**

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will be obvious. So for you, I ask that you accept these observations as a validation of the work that you do.

People. At NEPMU-2, my staff knows what an NEPMU is. With the organizational realignment and the internal construction that we have gone through in the last year and a half, they jokingly refer to us as the Never Ending Paint and Moving Unit because we have completely painted the internal spaces at least two times and moved everyone in the building from one space to another at least three times. But, this parody on NEPMU reflects one of the things that NEPMUs are about. NEPMUs are about their people and their unselfish sacrifice and dedication in getting the job done, wherever and whatever that job may be!

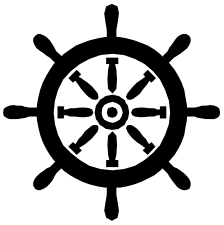
Deployments. More and more, NEPMUs are about deployments. The Officers and enlisted personnel from the NEPMUs are being asked to deploy more and more, in support of Force Health Protection for deployed military personnel. This is because Unit personnel are instrumental in conducting the surveillance necessary to reduce the incidence of Disease Non-Battle Injury for our deployed military personnel. For instance, in the past year, personnel from NEPMUs around the world have been deployed for extended periods of time to such remote places as Guatemala, Nicaragua, Venezuela, and East Timor. And, with the increasing demand for the services that our people can provide, the potential for the number of these deployed missions can only increase.

Focused expertise. Nowhere in the military can you find such a talented group of focused experts as you can at the NEPMUs. Industrial Hygiene Officers, Environmental Health Officers, Preventive Medicine Officers, Analytical Chemists, Microbiologists, Occupational Health Physicians, Public Health Educators in Health Promotion, Occupational Health Nurses, Entomologists, Aerospace Medicine Specialists, and Radiation Health Officers are some of the officer and civilian specialties that are represented at the NEPMUs. But, just as important, is the concentration of Preventive Medicine Technicians, or the "deckplate experts," that you find at NEPMUs. It is these individuals who have experience in the implementation of Fleet and Marine Corps Preventive Medicine practices and who are responsible for teaching the deckplate customer how to apply the best Preventive Medicine practices in his/her workspace, whether that be aboard ship or in the field. In reality, an NEPMU represents "one stop shopping" for the Navy and Marine Corps customer in the search for Environmental and Preventive Medicine services.

Customer Service. NEPMUs are about ensuring that the customer gets quick and responsive service, related to various PREVMED capabilities, in the most efficient means possible. It is the responsibility of the NEPMUs to ensure that Preventive Medicine policies designed to ensure the health and welfare of our sailors and Marines are adhered to. That means making our staffs accessible and visible on ships and in the field. More and more, personnel from the NEPMUs are becoming visible, and more and more, personnel from the NEPMUs are being made accessible. Initiatives like the Preventive Medicine Partnerships being set up in San Diego and Norfolk are certainly making our Technicians more visible and accessible on the waterfronts. The NEPMUs in Hawaii and Sigonella have always distinguished themselves by ensuring the accessibility of their personnel for immediate remote deployments. And, currently, the work being done at the Navy Environmental Health Center on the Forward Deployable Preventive Medicine Units is a new initiative to make Unit personnel more accessible and visible to our military commanders in the field. This emphasis on customer service is what NEPMUs are all about.

As the Senior Medical Officer on a carrier, my understanding of what an NEPMU was and what an NEPMU was about was very deficient because no one had ever bothered to tell me. If it had not been for my exposure to the important role of the Preventive Medicine Technicians aboard the ship, I may never have fully understood the value of the NEPMUs to the mission of the Navy and the Marine Corps. But, was that my shortcoming or was it a shortcoming of the NEPMUs? It is the responsibility of all of us in the Preventive Medicine community and, in particular, in the NEPMUs, to be sure that the line and the medical personnel who work with the line know what an NEPMU is and what an NEPMU is all about. If we assume that they know, we might be surprised to find out that they don't; and even if they know, how little they know. So, I encourage all of you to be visible and be accessible. In this day and age, where emphasis is being placed on producing the perfect war machine, speak loudly and speak often to your line commands and educate them on the valuable personnel resources and services that are available in the NEPMUs to protect their most valuable asset – that asset being their people.

Officer in Charge
NEPMU-2



OPERATION STABILISE: The PMT Gets a Reminder

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Okinawa, Arizona, Alaska, and Hawaii. The Army would eventually provide the bulk of the personnel on the ground in East Timor, but the Marines were the 'first in and last out.'

After two weeks, I moved into Dili, the now partially destroyed capital of East Timor. The Australian Defense Force had an Environmental Health Team operating in Dili and smaller teams assigned throughout most of the country. The Australian Army Environmental Health Officer, Captain Craig Schmieder, had his team well prepared, especially for vector control. Working closely with them proved to be a great benefit to the health protection of the U.S. element.

Fogging for mosquitoes in a former Indonesian Army compound – now a squatters' camp – in Dili, East Timor

The preventive medicine portion of our mission went remarkably well. In East Timor we aggressively implemented the Force Health Protection Plan and the Disease Non-Battle Injury (DNBI) numbers for U.S. personnel were extremely low. The 16-plus other participating nations experienced significant problems, including dengue and malaria. At one point, Dr. Yund was flown from Darwin to East Timor to investigate a dengue outbreak that had hospitalized 14 soldiers out of a 27-man Australian line unit.

This article is not solely about preventive medicine during Operation Stabilise, which brings me to the 'PMT... Reminder' portion of the title. I had deployed ready to provide environmental health and preventive medicine support-and was as ready for medical emergencies as any Corpsman. On day one I was preparing to address camp sanitation, water quality and mosquito eradication. What I had not anticipated so soon however, was the 15 patients waiting for sick call.

USF Medical consisted of myself and three general duty corpsmen who rotated between Dili, Baucau (a town farther east) and Darwin. I was based permanently in Dili, while each of the Corpsmen rotated roughly three weeks at a time in Dili, Baucau or Darwin. One Independent Duty Corpsman (IDC) was based permanently in Darwin. CDR Yund and LCDR Marcinko (the Medical Planner from III MEF) also supported us from Darwin. The stated reason for this distribution was to minimize the number of U.S. personnel in East Timor. Thus, Navy Medical was the only USF medical presence, even though Sailors and Marines were a small percentage of the troops on the ground.

My medical gear included a Unit-1 and a few meds, like Motrin, antifungal creams, a suture kit, etc. Sick call included patients from every service and while I was a little rusty at first, not having held or even reported for sick call in the past few years, HM3 Ott (from III MEF) and I were able to deliver quality field medical care. Additionally, we had excellent back-up from Dr Yund in Darwin, and the Australian and Singaporean Medical Officers in-country for consultations. HM3 Ott had a Merck Manual, a Physicians Desk Reference and several other useful references. The medical departments of the USS Belleau Wood and USS Peleliu were helpful with our urgent supply needs.

We averaged about 10 patients a day, with our final total for 70 days being just over 650 patients. We did refer a few patients to the Australian and the Singaporean Medical Officers locally for consultation, and arranged a few MEDEVACS, as well. We were also responsible for a large number of civilian contractors (including some Russian and Bulgarian helicopter pilots), and some minor humanitarian cases.

Our most frequent problems were wounds requiring sutures, some chronic skin rashes, gastrointestinal cases (equally divided between diarrhea and constipation) and locating medications for people who were running out-including difficult to obtain items like birth control pills. We also administered over 300 immunizations. Later HM3 Rosca (from 1st MAW) and HM1(FMF) Lalwani (from 3rd FSSG) would rotate through Dili and among the four of us, we ensured the quality of care remained as high as U.S. Forces anywhere are accustomed to. In fact, our reputation was such that INTERFET members from other countries would occasionally try to report to our sick call.

The rotating corpsmen also showed a lot of interest in preventive medicine and I was able to teach them quite a bit; although my efforts to recruit them for PMT school may have fallen short. Eventually, our complete AMAL, which had somehow ended up in Rockhampton, Australia with Exercise CROCODILE '99, reached Darwin and LCDR Marcinko was able to forward everything to us.

What lessons did I learn? Ideally, of course, it is critical to educate operators about our specific medical special-

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New Name, Redefined Mission

The microbiology laboratories at the Navy Environmental and Preventive Medicine Units have a long history with a tradition of service to the Fleet and deployments to remote areas, in support of military operations of all types. Since 1951, over 18 officers and 65 enlisted members have served in the microbiology laboratory at NEPMU-2 in Norfolk, VA. Personnel have deployed to locations such as Ethiopia, Lebanon, Saudi Arabia, and Nicaragua, even though our area of operations is the East Coast of the U.S., and much of Central and South America. Shipboard studies have taken members on cruises to South American and African coasts. Among the services provided historically, one can mention surveys of enteric diseases, epidemiological investigations, clinical lab support, typing of bacterial pathogens, training, food sanitation, and testing of potable water.

Since the mid 70's, the microbiology lab has been testing potable and recreational waters for military activities in the Hampton Roads area, with certification from the Commonwealth of Virginia as a Water Testing Laboratory obtained in the mid 80's by CDR Roy Garrigues, then Head, Microbiology Department. During the 90's, the lab processed on average 3,800 water samples annually, or over 300 samples per month. The membrane filtration technique was the technique of choice.

Recent development of new strategic goals at the Navy Environmental Health Center and consequently its subordinate commands, has brought about a new emphasis on Deployment Medical Surveillance (among other issues) and deployable units as our primary customer base. In accordance with new strategic goals and plans, the lab mission has been redefined and redirected towards its FDL/FDPMU and MMART functions, as well as CBRE capabilities. New state-of-the-art molecular biology techniques have been established at the lab, to include the Polymerase Chain Reaction (both standard and fluorescent) and Enzyme-linked Immunosorbent Assay. Rapid detection assays are also employed for tropical disease organisms.

To accommodate these changes, decisions were made with regards to traditional tasks performed by the lab, particularly the water testing function, which is now restricted to deployable units in the Hampton Roads area. This decision may have caused some inconvenience to shore medical facilities that were used to depending on a service that was provided, free of charge, for over two decades. However painful in the short run, these changes, I believe, will prove beneficial to all in the long run, as preventive medicine technicians in the area practice and rely on their own potable water testing skills, and our lab frees up time and funds to provide more advanced services to the fleet. To enhance our efficiency in water testing, the Colilert Method, which is much easier and faster than membrane filtration, is now being used exclusively. Along with the reorganization of the Unit, the department's name was changed to "Biodetection," reflecting the specific focus of our functions. With the new DMS emphasis, we offer these services to the fleet: Lab support for epidemiological investigations, rapid lab detection for tropical diseases and biological agents of warfare and terrorism, infectious disease surveillance in deployed environments, and training in basic lab procedures, STDs, potable water testing and CBRE. For questions or comments please feel free to contact LT Ed Gomez at DSN 564-7671 or email: gomeze@nepmu2.med.navy.mil

Head, Biodetection Department
NEPMU-2

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ties. The way contingencies go however, the PMT might well be the first medical person of any kind to arrive in the operational area. Patients in the field will not care what your NEC is. To meet this contingency at NEPMU-6, we have integrated a brief field primary care refresher into our MMART training.

We now have IDCs from Kaneohe Bay teaching a basic field refresher to our deployable Corpsmen, in the event we find ourselves providing field primary care. Our first aid kits, large and small, have been updated and we have included patient care references in our gear. Finally, we are also making full use of the Combined Humanitarian Assistance Response Training (CHART), available in Hawaii. The CHART course provides a clear picture of humanitarian assistance operations, including what other medical resources might be available in contingencies and how to access them.

As our missions change, we must remain flexible and continually update our training, based on our real-world experiences and the needs of those we serve.

SEL, NEPMU-6

*'STABILISE' is the correct (Australian) spelling of this operation's name.

How to be a Hero to Your Skipper!
…and why EPIWIZ is your new best friend

You can decrease preventable disease and injury rates. You can reduce lost work days, limited duty, and costly medevacs. You can measure workload, save money, and reduce unnecessary pain and suffering for your crew. It all starts with medical surveillance!

SURFPAC Instruction 6000.1 series mandates that all medical encounters are to be assigned an ICD-9 code. Coding medical encounters will help you learn who's getting sick or injured on your ship, and what types of illness and injuries they're getting. Using the SNAP Automated Medical System (SAMS) and a new software application called EPIWIZ, this data can be easily extracted and analyzed. You'll receive expert advice on how to implement risk reduction measures on your ship, and become an even more valuable member of your skipper's team.

EPIWIZ is not a program that will add to your workload. It is simply an interim technology bridge between SAMS and Microsoft Office applications. EPIWIZ allows us to tap into the SAMS database and view information about medical encounters in a user-friendly format. Charts, graphs, and summary reports of the information can be readily prepared. The Public Health professionals at NEPMU-5 will analyze your ship's data. They will provide regular and timely information on your ship's disease and injury numbers, as well as suggestions for risk reduction.

EPIWIZ is a collaborative effort between NEPMU-5 and NHRC, and is supported by Commander Naval Surface Force Pacific (Force Medical). Under the direction of CAPT Elizabeth Ledbetter, MC, USN, a team consisting of epidemiologists, medical researchers, computer programmers, and marketing experts is striving to make this program work for you. Currently, 35 COMNAVSURFPAC ships are involved in a three-month pilot data collection partnership. Over 20,000 shipboard medical encounters have already been reviewed. This data collection partnership is an important result of the very successful NEPMU-5 Fleet Partnership Program.

Shipboard medical personnel are just one of several different customers for this project, yet feedback from shipboard medical department representatives is crucial to the entire project's success. We need your input, and we need your data! Please join the team and remember to assign an ICD-9 code to all of your medical encounters. Please remember to enter all medical encounters in SAMS. A Windows-based SAMS is coming, and should make this process even easier--in the interim, we are developing a short list of commonly used ICD-9 codes for your workstation.

In conclusion, EPIWIZ can help make medical surveillance, improved medical readiness, and your job a lot easier. Let's work together and advance the health and welfare of our personnel.

Naval Health Research Center (NHRC)

Naval Medical Center San Diego det 119

Naval Medical Center San Diego det 119

NEPMU-5

Food Safety

Chapter 1 of the NAVMED P-5010, Food Service Sanitation, has been revised significantly and given a new title: "Food Safety." The new chapter is based on the U. S. Public Health Service Food and Drug Administration (FDA) "Food Code." It provides guidance for all military and non-military personnel of the Navy and Marine Corps and the Military Sealift Command involved with food safety/food service sanitation. The provisions of the revised chapter 1 were phased in over a six-month period, which began on 06 September 1999 with full implementation required on 10 March 2000.

Significant changes to the Chapter 1, Food Safety include:

- **Format**
- **Personnel Management**
- **Training and health requirements**
- **Food Handling Practices**
- **Hazard Analysis and Critical Control Points**
- **The Inspection Process**

Copies of the new Chapter 1, Food Safety, are available for download at the following web sites:

http//www-nehc.med.navy.mil and at
http//navymedicine.med.navy.mil

Further assistance for implementing the new chapter 1, Food Safety, is available by contacting your area Navy Environmental and Preventive Medicine Unit.

NEPMU-2

Atlantic Fleet
Preventive Medicine Partnership Program

The Navy Environmental and Preventive Medicine Unit 2 (NEPMU-2) kicked off the Preventive Medicine Partnership Program (PMPP) for the Atlantic Fleet on 17 Nov 1999. The Preventive Medicine Partnership Program was originally established by NEPMU-5 to enable Medical Department Representatives (MDRs) for afloat commands and Preventive Medicine Technicians (PMTs) from the NEPMUs to work together as partners to ensure the health and safety of shipboard personnel.

The initial thrust of the PMPP will be directed towards SURFLANT ships home ported in the Hampton Roads area. As the program evolves, the Unit will expand its coverage to include AIRLANT, SUBLANT and ships home ported at Mayport, FL, Ingelside, TX and Earle, NJ, with a goal of providing PMPP support to all areas by the summer of 2000.

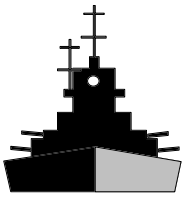
The PMPP program is designed to provide preventive medicine services to ships in port and while underway. A Preventive Medicine Technician (PMT) from NEPMU-2 is assigned to each ship. While in port, the PMT will make 1-2 visits each month to provide consultative and technical assistance to the MDR on issues related to Preventive Medicine, Environmental Health, Occupational Health, and Health Promotion Programs. Additional visits can be made as requested by the MDR. While the ship is underway, the PMT assigned to that ship would correspond either by message, e-mail, or phone, on a monthly basis, to inquire for any assistance that the ship may require. The Fleet Support Department at NEPMU-2 will liaison with TYCOM and RSG medical personnel for continuing program guidance and improvement.

Some of the advantages of the PMPP for the Fleet are: **1)** Ships will have point-of-contact access to Preventive Medicine support at all times. **2)** Unit PMTs will have direct access to Environmental Health and Industrial Hygiene Officers, Entomologists, and Epidemiologists for issues that require expert advice in these particular areas. **3)** PMPP eliminates the "snapshot" approach (periodic inspections) of assessing Preventive Medicine, Environmental Health, Occupational Health, and Health Promotion programs on board ships. Continuous, unobtrusive support by the PMTs allows for identification of program deficiencies, but more importantly, provides ongoing follow-up and the technical expertise to ensure resolution of the deficiencies. The PMT becomes a quasi-member of the crew and is tasked with providing oversight of those programs that protect the safety and welfare of the sailors on board their assigned ships.

Here are just a few examples of the many services that can be provided to afloat commands: **1)** On-site training of junior corpsmen as to the proper way to perform galley inspections. **2)** Training of command MS's on the major changes to Food Safety. **3)** On-site orientation of new Executive Officers on how to conduct proper messing and berthing inspections. **4)** Recommendations on how to streamline the Respiratory Protection Program. **5)** Completion of Deratting Exemption Certificates. **6)** Assistance with the annual influenza shot evolution. **7)** Assistance on setting up shipboard health promotion programs that help commands in obtaining the yearly Green "H" Award.

The PMPP will be a very useful tool for the Fleet and will be vital in supporting Navy Medicine's strategic goal of providing Force Health Protection. For more information concerning the Preventive Medicine Partnership Program, you can contact LT Gene Garland, Head, Fleet Support Department at 444-7671 ext 3015.

Head, Fleet Support Department
NEPMU-2



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Dengue – A Global Emerging Infectious Disease

Dengue is a disease that has been making international headlines lately, due to its tremendous resurgence since the early 1960s. Once nearly eliminated from the Western Hemisphere, this disease, also known as "breakbone fever," has returned with a vengeance. Dengue occurs only in humans, and primarily in the tropics. Worldwide, the annual incidence of infection is estimated to be in the tens of millions, with approximately 24,000 deaths per year. Most of those fatalities are young children. The principle vector of this viral disease is *Aedes aegypti*, also known as the Yellow Fever Mosquito. *Aedes aegypti* is a small, black-and-white, day-biting mosquito that lives primarily between latitudes 45° north and 35° south, worldwide. Unfortunately, roughly 42% of the world's population - 2 ½ billion people - live within these same latitudes. There are 100 or so countries and territories between these latitudes where dengue is present (Fig. 1).

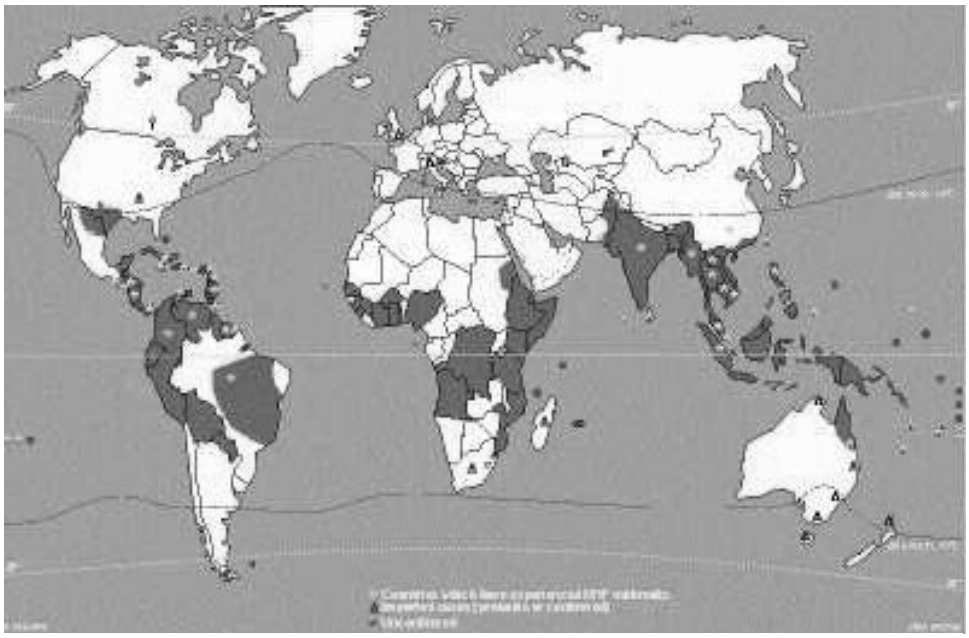

Fig. 1. Dengue endemic areas worldwide

Dengue is caused by one of four closely related, but antigenically distinct, virus serotypes (DEN-1, DEN-2, DEN-3, and DEN-4), of the genus *Flavivirus*. Sadly, a person who has been infected with one of the serotypes, then subsequently recovered from and obtained life-long immunity to that one serotype, is still susceptible to infection from the other three serotypes. In theory then, you can contract dengue four times during your life. And, unlike Yellow Fever, there is currently no vaccine for it.

Dengue has a short incubation period - anywhere from five to seven days. For this reason it is known as the "tourist disease." Vacationers returning home to the United States from various tropical locations such as Caribbean resorts become ill, after having been bitten by an infected mosquito. At the time of the bite, if they had noticed anything at all, it was that they had the usual bump and itch associated with a mosquito bite. If that person didn't notice being bitten, it is because *Aedes aegypti* is small, dark, and hard to see, almost silent (no loud buzz), and has the nasty habit of biting low and from behind, near the ankles and the back of the legs. Most victims of a dengue-infected mosquito bite forget that they were bitten after the itching stops - until a week or so later.

The signs and symptoms of dengue include a sudden, rapidly climbing fever, severe headache, intense retro-orbital pain, photosensitivity, nausea and vomiting, loss of appetite, rash, and deep muscle and joint pains. Dengue picked up the nickname "breakbone fever" because of the last two symptoms. A rash usually appears three to four days after the start of illness, beginning on the torso and then spreading out to the face, arms, and legs. Although the sickness passes after about a week, many victims complain about a

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Dengue – A Global Emerging Infectious Disease

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lingering weakness that often lasts for several months or more.

Once dengue becomes established in a city or town, it is often very difficult to get rid of because *Aedes aegypti* is predominately an urban or "domestic" mosquito species, preferring to live in close association with humans. It is much more at home in your closet, behind your sea bag, or under your bed (or cot), than it is in the woods. This is due in large part to its preferred breeding habitat: man-made artificial containers. In much of the third world, man-made containers abound as a result of little or no refuse collection. Furthermore, man-made containers are used in the constant effort to collect rainfall for drinking water. Thus, not only is *Aedes aegypti* found breeding in proximity to human habitation, but with lack of air-conditioning and screening, suitable housing is just a short buzz away.

Since there is currently no vaccine for dengue, the primary protection against it, shy of a full-scale mosquito control program, is the use of personal protective techniques and repellents, available to all military personnel. The details can be obtained from the Armed Forces Pest Management Board Technical Information Memorandum No. 36 "Personal Protective Techniques Against Insects and Other Arthropods of Military Significance." This memorandum is available online at http://www.afpmb.org under Technical Information Memorandums or at your local preventive medicine unit. The two most important personal protective measures you can take against day-biting *Aedes aegypti* are treating the field uniform with permethrin and the use of DEET insect repellent on your skin.

Permethrin is an extremely safe insecticide that also acts as a repellent. It is applied **ONLY** to the outer surfaces of the camouflage utility uniform shirt and trousers, and no other clothing - especially hats, socks or underwear. If using the aerosol can (NSN 6840-01-278-1336), expect the repellency to last approximately six weeks or six washings. Concentrated permethrin comes in a 5.1 ounce (151 ml) bottle and can be ordered through the Navy Supply system (NSN 6840-01-334-2666). It is labeled for use by certified or trained personnel only. Navy Preventive Medicine Technicians are licensed to apply this repellent and will do so if requested. Once the concentrate has been applied, it will last the life of the uniform, unless it is dry cleaned. Dry cleaning removes all permethrin and consequently, all protection. Starching uniforms will not remove or damage the protective capabilities provided by permethrin.

Use DEET (N,N-diethyl-m-toluamide) for skin protection. DEET has been around since 1957 and is a proven product; there is no better repellent available to protect skin from biting insects. Our Navy Supply system has the best formulation in the country (really!). The 2-ounce tube of 33% DEET cream (NSN 6840-01-284-3982) is our standard use repellent. This 33% concentration is higher than anything found in commercial markets. Additionally, DEET cream is formulated as a controlled-release polymer base. Essentially, this polymer base slowly releases DEET allowing it to last from 10-12 hours per application, which far exceeds anything sold in the commercial market. Military DEET also has a strong, pleasant aroma, which will temporarily mask a multitude of nasty body odors. Read the directions on the tube before using and keep this product off moist areas, such as armpits, and away from mucus membranes - nostrils, mouth, and eyes.

Having just returned from a one-week assessment visit to Dili, East Timor, I can personally attest to the effectiveness of the permethrin-treated uniform and DEET treated skin. The populace of Dili is currently suffering from dengue, due to many factors, and *Aedes aegypti* is everywhere. This mosquito constantly pestered us during daylight hours in town, but few of our 14-member team suffered any mosquito bites. Overall, the permethrin-DEET system is very effective and well worth the effort to use before and during deployments. Entomologists, Environmental Health Officers, and Preventive Medicine Technicians at any of the Navy Environmental and Preventive Medicine Units and Navy Disease Vector Ecology and Control Centers can answer further questions you may have. So, the next time you go on an all-expense paid tropical "vacation," courtesy of the U. S. Government, remember that dengue may already be there, but so is the necessary protection and assistance you will need from Navy Preventive Medicine personnel.

Entomology Department
NEPMU-6

Improving Your Presentations:

How to Use Learning Styles to Increase Comprehension and Retention

The health and well being of our Sailors, as well as Fleet readiness, depend upon effective preventive medicine training. Sometimes, though, no matter how well a Preventive Medicine Technician teaches, some students just might not absorb the material. This may simply be a matter of different learning styles. The Navy Instructor Training schools recognize four basic learning styles, and incorporating them into your lessons can increase the effectiveness of your teaching.

If you think back to your school days, you may recall a few teachers whose classes you enjoyed. You can probably remember a few teachers who you were not so fond of, as well. Chances are, those teachers you favored were the same type of learner that you were (and still are). The opposite follows for those teachers whose classes you did not look forward to - they were probably a different type of learner (and teacher) than you were as a student. There are as many different learning and teaching styles as there are people – everyone has his or her own way that works best. But everyone shares the four basic types recognized by the Navy, to some degree or another.

These four learning types are not based on intelligence, and no one style is better than another. However, the best learners use all four styles – and so do the best instructors. When combining learning styles, retention of new material increases dramatically. In scientific tests, the use of one learning style yields a retention rate of about 20%. When two styles are used to convey new information, the rate jumps to about 50%. With three learning styles, the retention rate is as high as 70%, and with four, it skyrockets to 90%! In addition to increasing retention, an instructor's use of more than one learning/teaching style maximizes the students' understanding of new material, as well as their ability to apply it. Clearly, it is well worth an instructor's time and effort to teach with as many of the four styles as possible.

THE BIG FOUR

So what are these learning styles, and how can an instructor make use of them? First, the learning styles:

Concrete learners, also known as "feelers," prefer experience-based learning. They want to jump in and see how it feels, without "having to read about it." Concrete learners are people-oriented, often to the point that they prefer to interact with and learn from fellow students, rather than the instructor. They benefit greatly from discussions and feedback from other learners like themselves. Concrete learners are also receptive to new experiences and activities, treating each situation as a new case.

Abstract learners are deep thinkers. They prefer a theory-based, analytical approach. As opposed to concrete learners, abstract learners are not interested in touching something, they ***do*** want to read about, study, and analyze new material and ideas. They are also more oriented to things and symbols than they are to equipment. Discovery-type learning approaches, such as role-playing and simulations, do not work well with this type of learner. Lectures by experts do work well, however, as do theoretical readings, case studies, solitary thinking activities, and conceptual models.

Similar to the Abstract learners are the **Reflective learners**, the "watchers." Reflective learners are reserved and careful, relying heavily on observations when making judgements. Reflective learners prefer lectures, movies, reading with reflection, and classroom discussions about observations and ideas.

And, last but not least, are the **Active learners**, the students who "like to do things." Active learners are performers, who learn by becoming involved in a subject. They rely on experimentation, and prefer to apply what they are learning in a step-by-step, active approach. Active learners are not fond of lectures, but they do well in small group discussions, structured trial and error exercises, and problem-solving approaches to relevant issues.

"VARIETY IS THE SPICE OF LIFE"

When presenting a lesson or a group of lessons, vary and combine your teaching methods as much as you can. Use one method to complement another. After showing a video (reflective), follow it up by separating the class into groups where they discuss and present to the rest of the class an assigned aspect of the video (active/concrete). Or, after a lecture (abstract), give your students a chance to experiment with the techniques you talked about (active). In a lesson that is key to your class' mastering the subject matter, use all four learning types to achieve that 90% retention rate. In a laboratory situation, you might assign your students a theoretical reading selection (abstract), followed by a teacher demonstration (reflective), followed by an evaluative discussion (concrete), followed by student experimentation (active). As the instructor, you are only limited by your imagination. See the sidebar for a quick listing of the teaching techniques that work well with the different learning styles.

(Continued on page 11)

Hail & Farewell

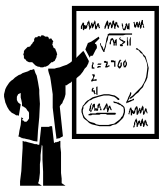
Welcome Aboard! Fair Winds and Following Seas!

Improving Your Presentations: How to Use Learning Styles to Increase Comprehension and Retention

(Continued from page 10)

SUMMARY

In addition to knowing these four types of learning styles, it is also a good idea for an instructor to be aware of his or her own dominant style. This is so the instructor can make it a point to ***not*** rely on that favorite style while teaching, to the detriment of those students who don't learn well that same way. Also, be aware that people often favor different styles at different times and under differing conditions. If you ever have a "difficult" student, who cannot seem to concentrate on your lesson, ask yourself if that student just might not be able to gain anything from your style of teaching. If you think so, adapt your lesson. You could involve that student in a discussion, or let him or her conduct a separate experiment or a study on the side, and report back to the class. Varying your teaching styles is a valuable tool in the instructor's bag of tricks. Personalize your lesson plans to include these styles, then practice and use them. You will see positive results.



Master Training Specialist
Training Department
NEPMU-6

Learning Activities to Mix and Match for the Different Types of Learners

Concrete (Feeler) Activities

interaction with fellow students
discussions and feedback from other learners like themselves
receptive to new experiences and activities

Abstract (Thinker) Activities

reading about, studying, and analyzing new material and ideas
oriented to things and symbols, as apposed to equipment
lectures by experts
theoretical readings
case studies
solitary thinking activities
conceptual models

Reflective (Watcher) Activities

lectures
movies
reading with reflection
classroom discussions about observations and ideas

Active (Doer) Activities

experimentation
applying learning material in a step-by-step, active approach.
small group discussions
structured trial and error exercises
problem solving approaches to relevant issues

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